DOCUMENT RESUME

ED 456 261 CE 082 241

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TITLE Workplace Affordances and Individual Engagement at Work.
SPONS AGENCY Australian National Training Authority, Brisbane.
PUB DATE 2001-03-00
NOTE 9p.; In: Research to Reality: Putting VET Research To Work. Proceedings of the Australian Vocational Education and Training Research Association (AVETRA) Conference (4th, Adelaide, Australia, March 28-30, 2001); see CE 082 232.
AVAILABLE FROM For full text: http://www.avetra.org.au/PAPERS%202001/billett.pdf.
PUB TYPE Information Analyses (070) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adult Education; Adult Learning; Case Studies; *Education Work Relationship; *Educational Environment; Educational Opportunities; Educational Strategies; Environmental Influences; Foreign Countries; *Learning Processes; Learning Strategies; Organizational Climate; Participation; Postsecondary Education; Student Motivation; *Vocational Education; *Work Environment
IDENTIFIERS Australia; *Guided Study; Learning Organizations; *Work Based Learning

ABSTRACT

The factors that influence learning in workplaces were examined through a study of guided learning in five workplaces. Special attention was paid to the dual considerations of how workplaces afford opportunities for learning and how individuals elect to engage in activities and the guidance provided by the workplace. The readiness of the workplace to afford opportunities for individuals to engage in work activities and enjoy the benefits of both direct and indirect support proved to be a key determinant of the quality of learning in workplaces. Guided learning strategies (modeling, coaching, questioning, analogies, and diagrams) augmented learning through everyday work activities. However, the use of guided learning strategies and their perceived value varied across the five enterprises studied. Factors such as variations in enterprise size, activities, and goals did not fully explain the observed differences. The following items were deemed necessary for improving workplace learning: (1) appropriate development and implementation of workplace environments that are invitational; (2) tailoring of the workplace learning curriculum to particular enterprise needs; (3) encouragement of participation by those who are learning and those who are guiding the learning; and (4) appropriate selection and preparation of the learning guides. (Contains 23 references.) (MN)

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Workplace affordances and individual engagement at work

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This paper discusses factors that influence how learning in workplaces proceeds. It focuses on the dual considerations of how workplaces afford opportunities for learning and how individuals elect to engage in activities and with the guidance provided by the workplace. Together, these dual bases for coparticipation at work, and the relations between them, are central to the kinds of learning that workplaces are able to provide. Accordingly, the readiness of the workplace to afford opportunities for individuals to engage in work activities and enjoy the benefits of both direct and indirect support is a key determinant of the quality of learning in workplaces.

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Affording workplace learning

How workplaces afford opportunities for learning, and how individuals elect to engage in activities and with the support and guidance provided by the workplace, is central to understanding workplaces as learning environments. These dual bases for participation at work - coparticipation - and the relations between them, are held to be central to understanding the kinds of learning that workplaces provide. In particular, the workplace's readiness to afford opportunities for individuals to engage in work activities and direct and indirect support is a key determinant of the quality of learning. These affordances are salient to the outcomes of both structured workplace learning arrangements, such as mentoring, as well as learning accessed through everyday participation at work.

Discussions of enterprise readiness are supported through the findings of an investigation of guided learning in five workplaces (Billett et al 1998). It was found that guided learning strategies (modelling, coaching, questioning, analogies and diagrams) augmented learning through everyday work activities. However, across the enterprises in this study, there were differences in the use of guided learning strategies and their perceived value. Factors such as variations in enterprise size, activities and goals did not fully explain these differences. Instead, the salience of the enterprises' readiness to afford activities and guidance was identified.

Overall, it seems that those learners afforded the richest opportunities for participation reported the strongest development. Readiness is more than the preparedness for guided learning to proceed. It includes the norms and work practices that constitute the invitational qualities for workers to participate in and learn through work. The degree by which workplaces provide rich learning outcomes through everyday activities and intentional interventions will be determined, at least in part, by their readiness to afford opportunities and support for learning.

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Participation in work and learning

There is no separation between participation in work and learning (Lave 1993). Work activities, the workplace, other workers and observing and listening are consistently reported as key sources for workers to learn their vocational activities through work (Billett 1999a). The moment-by-moment learning or microgenetic development (Rogoff 1990; 1995) occurring through work is shaped by the activities individuals engage in, the direct guidance they access and the indirect contributions provided by the physical and social environment of the workplace. Work activities act to reinforce, refine or generate new forms of knowledge. This kind of ongoing learning is analogous to what Piaget (1966) referred to as accommodation and assimilation.

Consequently, learning through work can be understood in terms of the affordances that support or inhibit individuals' engagement in work. These affordances are constituted in work practices. Beyond judgements of individuals' competence, opportunities to participate are distributed on bases including race (Hull 1997), gender (Tam 1997), worker or employment status, workplace hierarchies (Darrah 1996, 1997), workplace demarcations (Bernhardt 1999; Billett 1995; Danford 1998), personal relations, workplace cliques and affiliations (Billett 1999b). Whose participation is encouraged or inhibited is a central concern for understanding and enacting workplace learning.

Of course, workplaces are contested environments. The availability of opportunities to participate is the source of contestation between: 'newcomers' or 'old-timers' (Lave and Wenger 1991); full- or part-time workers (Bernhardt 1999); teams with different roles and standing in the workplace (Darrah 1996; Hull 1997); individuals' personal and vocational goals (Darrah 1997); or among institutionalised arrangements such as those representing workers, supervisors or management (Danford 1998). Contingent workers - part-time and contractual - may struggle to be afforded opportunities to participate in the ways available to full-time employees. For example, part-time women workers have difficulty in maintaining the currency of their skills and in realising career aspirations (Tam 1997).

Opportunities for learning are distributed on the basis of perceptions of workers' worth and status. Lower status workers may be denied the affordances enjoyed by high status workers (Darrah 1996). Affiliations and demarcations within the workplace also constitute bases to distribute opportunities. In one instance, plant operators in an amalgamated union invited fellow plant workers to access training and practice while restricting opportunities to other workers in the same union (Billett 1995). Personal affiliations in workplaces also determine participation and how coworkers' efforts are acknowledged. The concern is that participation in work tasks and therefore opportunities for learning are distributed asymmetrically. Individuals' ability to access and observe coworkers, and workplace processes, assist in developing competence in work activities. Therefore, how individuals can access both familiar and new work tasks, and interact with coworkers (particularly more experienced workers), will influence their learning.

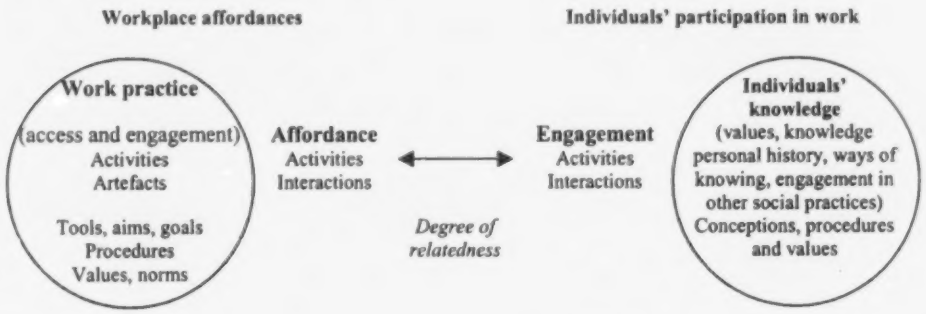
However, while acknowledging the salience of contributions afforded by workplaces, how individuals' elect to engage with workplace activities and guidance also determines the quality of their learning. Learning new knowledge (ie concepts about work, procedures to undertake tasks or attitudes towards work) is effortful

and refining the knowledge previously learnt is mediated by individuals' existing knowledge, including their values about where and to which activities they should direct their energies. Therefore, engagement in work activities does not lead to unquestioned participation or learning of what is afforded by the workplace. Individuals are active agents in what and how they learn from these encounters (Engestrom and Middleton 1996).

However, it would be mistaken to ignore the role of human agency. Wertsch (1998) distinguishes between mastery and appropriation. The former is the superficial acceptance of knowledge coupled with the ability to satisfy the requirements for public performance. The unenthusiastic use of standard salutations by supermarket checkout operators and airline cabin crews are illustrations of mastery. Appropriation is the acceptance by the individual of what they are learning and their desire to make it part of their own repertoire of understandings, procedures and beliefs (Luria 1976). Whether appropriation and mastery result is the product of individuals' life histories and is negotiated through encounters such as those in the workplace.

Figure 1 depicts the dual bases for coparticipation at work. The affordances that workplaces can provide and the outcomes arising from that participation are represented in the left-hand circle. On the right-hand side are the bases for individuals' engagement and outcomes.

Figure 1: Coparticipation at work



Coparticipation at work

The findings of an investigation of learning in the workplace are useful in considering coparticipation at work (Billett et al 1998). This investigation examined the efficacy of the contributions of both the 'unintended' (ie everyday activities, observing and listening, other workers, the workplace) - referred to as the 'learning curriculum' (Lave 1990) - and intended guided learning strategies (ie modelling, coaching, analogies, diagrams, questioning) to learning the knowledge required for work performance.

The data gathering procedures included monthly interviews over a six-month period, to elicit learners' accounts of recently undertaken workplace tasks. Learners were asked about whom or what had helped them complete these tasks or what they needed more of in order to complete tasks. Throughout the investigation, the researchers also made notes about each of the workplaces and how the provision of workplace learning was manifested in each setting.

The findings overviewed here are drawn from three workplaces, providing comparisons across and within workplaces about how they afforded participation in work activities. Healthylife[1] is a large food manufacturer, with a history of in-house training. Workers in many areas of the plant were quite familiar with work-based programs. Albany Textiles is a large textile manufacturing company. It has a highly demarcated workforce and hierarchical organisational structure, with little in the way of in-house training having occurred in the manufacturing plant at the time of the investigation. Powerup is a recently corporatised, public sector power distribution company. At the time of the project it was settling into its new corporate structure and role. The employees of this company were either based in the head office or located across the regions to which the company distributed electricity.

While the findings do not directly inform about how other factors (eg gender, language, division of labour and affiliations) shape participation, they contribute to understanding the process of and consequences for participation at work and learning through that participation.

Overall, it was found that where the affordances were rich, the reported learning outcomes associated with working knowledge were generally higher than where this support was not forthcoming. Yet, there were instances where individual actions work against the norms of the workplace. At Healthylife, the product development area was highly invitational for learning, and accepted and appreciated as such by the learners. These affordances included the mentors' intent to provide the most effective level of guided learning, supported by an environment which was open to constructive interactions. Here, concerns about preparation were focused on how to best use the strategies to make workplace learning more effective. The mentors used the strategies in combination and in ways that allow them to merge. This is seen as the desirable outcome; intentional learning strategies being used and accepted as part of everyday practice in the workplace.

In contrast, the highly invitational qualities of this workplace were seemingly rejected by a reluctant participant; a new recruit in the occupational health and safety area. His reluctance to engage with the workplace and his dismissal of the mentor and the guided learning strategies were quite distinct. He most valued contributions that excluded the mentor. In these ways, one work area illustrates how the affordances of the workplace-supported learning (as reported by the mentors and learners), whereas in another work area, an individual's decision not to engage in the work practice demonstrated that invitational qualities alone cannot guarantee rich learning outcomes.

Whereas Healthylife provided an instance of an individual resisting engagement in the guided learning and the work practice, Albany Textiles provides a case where the opposite was true. Despite the low level of support and readiness for guided learning and low levels of reported outcomes, one mentor, against the norms of

practice, provided high levels of support that was both appreciated by and instrumental for the two learners concerned, thereby making the workplace supportive and invitational. These learners stated that the learning process had opened up possibilities, thereby emphasising an important emancipatory role for workplaces in providing opportunities for those for whom there is no option other than to learn in the workplace. Finally, with Power Up, one individual struggled and persisted when other coworkers withdrew from the workplace learning arrangements that the work environment was not ready for or committed to.

These findings indicate the potential of individual agency to offset some of the limitations of an environment whose affordance is weak, and to determine what constitutes an invitation to participate. Also, the degree of workplace readiness influences how activities and support are afforded as part of everyday work activities. The data indicate that the openness and support for learning also influence the learning occurring through everyday workplace activities. Realising the full potential of learning at these work sites, particularly the mentoring process, is unlikely to be fulfilled without careful scene-setting and thorough preparation.

In some ways, these findings are commonsensical; the kinds of opportunities provided for learners will be important for the quality of learning that transpires. Equally, how individuals engage in work practice will determine how and what they learn. Nevertheless, these factors may be overlooked if the links between engaging in thinking and acting at work and learning through those actions is not fully understood. Also, establishing a workplace training system, without understanding the bases of participation, is likely to lead to disappointment for both workers and enterprises.

The identification of these relations and their consequences for learning have three important conceptual implications. Firstly, a current area of deliberation within constructivist theory is to understand the relations between individuals and social practice. Here, it is shown that rather than being a mere element of social practice (eg Hutchins 1991), individual agency operates both interdependently and independently in social practices, as Engestrom and Middleton (1996) suggest. However, this agency manifests itself in a different ways. While there is evidence of interdependence, there are also examples of individuals acting independently in ways inconsistent with the norms and practices of the work practice. This is not to propose a shift back to individualistic psychological analyses. Instead, the socially-derived personal histories (ontogenies) of individuals, with their values and ways of knowing, mediate how they participate and learn in social practice, eg in workplaces. Relations between ontogenies and social practice determine participation. The kinds of coparticipation at work identified in the three enterprises begin to indicate the diversity of how relations between the individual and social practice shape individuals' participation and learning.

Secondly, the findings emphasise that individuals' participation at work is not passive or unquestioning. Even when support is forthcoming - that is, the workplace is highly invitational - individuals may elect not to participate in the goal-directed activities effortfully, accept the support available or appropriate the knowledge that is made accessible to them. Individuals need to find meaning in their activities and worth in what is afforded for them to participate and appropriate.

Coal miners, for instance, were skeptical of work safety training that they believed was aimed to transfer the responsibility of safe working practices from the mine management to the miners (Billett 1995). Equally, when workers believed the enterprise focus was too strong in their college-based course, they withdrew their commitment, claiming their needs and aspirations went beyond the company's goals and procedures represented in the course (Billett and Hayes 2000).

However, individual independence cannot be merely categorised as positive or negative. Darrah (1997) has vividly depicted how inconsistencies between the values of the workplaces and those of the workers lead to a rejection of work practices not acceptable to workers. Indeed, as Hodges (1998) has shown, rather than identifying with the values and practices of the workplace, participation can lead to a dis-identification with those values and practices. At Healthylife, the new occupational health and safety (OH&S) officer might have been more competent than his mentor and had something special to contribute to the OH&S policies within the workplace. This suggests different kinds of invitational qualities are required, such as those able to engage reluctant participants and enable them to find meaning or participate in ways that permit them to transform and/or contest existing values and practices or find meaning in participation.

Thirdly, in so far as they can offer access to important vocational knowledge, it is important that workplaces are highly invitational. The findings suggest that where support is available, workplaces can facilitate the learning of the hard-to-learn knowledge required for vocational practice. It seems that for workplace learning to proceed effectively, how workers are afforded opportunities to participate and are supported in this endeavor will shape the prospect of rich learning outcomes.

Summary

In sum, the guided learning strategies trialed in the five workplaces demonstrated that when they are used frequently, and in ways supportive of the work tasks individuals are engaged in, such individuals can develop much of the knowledge required for workplace performance. These strategies augment the contributions provided by everyday participation at work. However, underpinning both of these kinds of contributions is coparticipation; ie how the workplace affords opportunities for individuals to engage in and be supported in learning in the workplace.

Accordingly, to improve workplace learning, there is a need for (i) appropriate development and implementation of workplace environments that are invitational; (ii) a tailoring of the workplace learning curriculum to particular enterprise needs, including the readiness of both the learners and the guides; (iii) encouraging participation by both those who are learning and those guiding the learning; and (iv) the appropriate selection and preparation of the learning guides. These kinds of measures seem to offer some foundations upon which workplaces can become effective sites for the development of the kinds of knowledge that would benefit both those workplaces and the individuals who work in them.

Notes

1. The names of the three enterprises referred to here are fictitious.

Acknowledgements

Thanks to Andrew McCann and Kerrie Scott for research assistance in the investigation referred to above; to the enterprises and their staff who participated; and the Australian National Training Authority who funded this investigation.

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